Journal of Clinical Engineering

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Title **Evaluation of Validity of the PMI FIT 2000-3 Fitness-for-Duty/Impairment Screener.**[Miscellaneous Article]

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Abstract **Eye reflex measurements have been suggested as a means of identifying the risk of fatigue due to sleep deprivation. The PMI FIT 2000-3 Fitness-for-Duty/Impairment Screener was developed to classify subjects as low risk or high risk for fatigue based on the comparison of 4 eye reflex measurements (pupil diameter, constriction amplitude, constriction latency, and saccadic velocity) to rested baseline values. The purpose of this experiment was to determine the validity of the PMI FIT 2000-3, where validity was defined as the classification of subjects as high risk following 48 hours of sleep deprivation. In the week before the test period, 12 subjects were tested at least 10 times after a typical, full night's rest to establish baseline values. Subjects were then tested 3 times every 4 hours during 48 hours of sleep deprivation. No subjects were classified as high risk at the end of the test period, and none were classified as high risk at any point during the 48 hours without also being classified as low risk at the same time. Ultimately, the PMI FIT 2000-3 was not found to be a valid measure of fatigue resulting from sleep deprivation.**

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Associations between the metabolic syndrome and its components, watching television and physical activity

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Summary

Objective

To examine the associations between watching television and physical activity with the metabolic syndrome and its components.

Study design

Cross-sectional study.

Methods

This study was conducted among 358 subjects recruited from the Department of Health Management of . After adjustment for gender, age and body mass index (BMI), the odds ratios (ORs) of the metabolic syndrome and its components were analysed for relative daily energy expenditure groups and time spent watching television categories.

Results

After adjustment for gender, age and BMI, the OR of the metabolic syndrome in the most active subjects compared with the least active subjects was 0.27 [95% confidence interval (CI)=0.08–0.88; P=0.030]. There was inconclusive evidence of an association between watching television for more than 20 h/week and presence of the metabolic syndrome (OR=2.99; 95% CI=0.83–10.84; P=0.095).

Conclusions

Physical activity was a significant protective factor for presence of the metabolic syndrome and low levels of high-density-lipoprotein cholesterol. Watching television was positively associated with greater odds of high levels of triglycerides and fasting glucose. This study emphasized the importance of reducing the time spent watching television and increasing the level of physical activity for prevention of the metabolic syndrome.

Keywords: Metabolic syndrome; Watching television; Physical activity

Postgraduate Medical Journal, 2002

Closure of traumatic wounds without cleaning and suturing

Delta DD, Echo EE, Foxtrot FF, Golf GG.

Department of Surgery

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Background: In less than ideal situations wounds have to be closed without extensive cleaning using sterile adhesive strips (Steristrips). This prospective analyses the efficiency of this technique and compares it to the more conventional approach.

Methods: Altogether 147 lacerations were closed with sterile strips with no wound cleaning. Patients were subsequently followed up for a minimum of three months.

Results: The sepsis rate in compliant patients was 1.4% with a total complication rate of 2.7%.

Conclusion: This technique, while contradicting the "sacred tenets" of wound closure, is a cheap, quick, and effective alternative to routine closure of traumatic wounds in a casualty department

Biochemistry and Cell Biology

2006)

Dose-dependent effect of hydrogen peroxide on calcium mobilization in mouse pancreatic acinar cells

We have employed confocal laser scanning microscopy to investigate how intracellular free calcium concentration ([Ca2+]i) is influenced by hydrogen peroxide (H2O2) in collagenase-dispersed mouse pancreatic acinar cells. In the absence of extracellular calcium, treatment of cells with increasing concentrations of H2O2 resulted in an increase in [Ca2+]i, indicating the release of calcium from intracellular stores. Micromolar concentrations of H2O2 induced an oscillatory pattern, whereas 1 mmol H2O2/L caused a slow and sustained increase in [Ca2+]i-CH2O2 abolished the typical calcium release stimulated by thapsigargin or by the physiological agonist cholecystokinin octapeptide (CCK-8). Depletion of either agonist-sensitive or mitochondrial calcium pools was unable to prevent calcium release induced by 1 mmol H2O2/L, but depletion of both stores abolished it. Additionally, lower H2O2 concentrations were able to release calcium only after depletion of mitochondrial calcium stores. Treatment with either the phospholipase C inhibitor U-73122 or the inhibitor of the inositol 1,4,5-trisphosphate (IP3) receptor xestospongin C did not modify calcium release from the agonist-sensitive pool induced by 100 µmol H2O2/L, suggesting the involvement of a mechanism independent of IP3 generation. In addition, H2O2 reduced amylase release stimulated by CCK-8. Finally, either the H2O2-induced calcium mobilization or the inhibitory effect of H2O2 on CCK-8-induced amylase secretion was abolished by dithiothreitol, a sulphydryl reducing agent. We conclude that H2O2 at micromolar concentrations induces calcium release from agonist- sensitive stores, and at millimolar concentrations H2O2 can also evoke calcium release from the mitochondria. The action of H2O2 is mediated by oxidation of sulphydryl groups of calcium ATPases independently of IP3 generation.Key words: hydrogen peroxide, pancreatic acinar cells, intracellular calcium stores, amylase secretion.